BY ORDER OF THE COMMANDER
419TH FIGHTER WING

419th FIGHTER WING INSTRUCTION 91-304

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Safety

F-16 AIRCRAFT HYDRAZINE PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction establishes procedures and assigns responsibilities for processing the F-16 Aircraft Hydrazine System through normal and emergency conditions while aircraft are assigned to the 419 FW. It implements AFPD 91-3, *Occupational Safety and Health*. It also references AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Prevention and Health (AFOSH) Program*; AFMAN 91-201, *Explosive Safety Standards*; T.O. 00-5-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*; AFOSHSTD 48-1, *Respiratory Protection Program*; AFOSHSTD 48-8, *Controlling Exposure to Hazardous Materials, H-70 Spill Check-list*; T.O. 1F-16C-2-10JG-00-1, *Aircraft Safety*; T.O. 1F-16C/D-2-49JG-00-2, *Emergency Power System*; T.O. 1F-16C/D-2-49GS-00-1, *Emergency Power System*; T.O. 42B-1-1-18, *Handling of H-70 (Hydrazine - Water Fuel)*; HAFB Oplan 32-1, Appendix 3 Annex A-1. This instruction applies to 419th Logistics Group and 466th Fighter Squadron Maintenance personnel.

SUMMARY OF REVISIONS

This revision changes maintenance operations center (MOC) to debrief/dispatch section (DDS); corrected terminology (paragraph 4.4.); included requirement to stand upwind of spill (paragraph 6.3.1.); added referenced technical order (paragraph 6.5.3.1.); deleted and added items to (Attachment 1 and Attachment 2). A (|) indicates revision from the previous edition.

1. Introduction. Various operations performed within aircraft maintenance or in an environment where personal injury and aircraft damage could occur if proper hydrazine maintenance is not applied.

2. Definition:

2.1. Normal Hydrazine Maintenance. Routine maintenance on any and all components of the hydrazine system during normal operating functions.

2.2. Abnormal Hydrazine Maintenance. Work on any portion of the F-16 EPU or hydrazine system, which fails, leaks, or is inadvertently fired and considered contaminated.

2.3. Hydrazine Spill During Normal Hydrazine Maintenance (Scheduled Maintenance). Small drops of hydrazine (H-70) may be expected during system maintenance. This is not a spill situation if anticipated and if precautionary actions have been taken. Larger spills will be complied as prescribed by LCL 419 FW-10-6.

3. Policies:

3.1. H-70 Emergency Response Spill Team. A qualified H-70 response spill team of six people for the wing is on duty during all shifts when aircraft maintenance is being performed on F-16 aircraft. During non-duty hours the function is performed by the base as defined in HAFB OPLAN 32-1. 419 FW and 388 FW H-70 teams may cover each other's operations as required when properly coordinated.

3.2. Spill teams, along with a complete hydrazine emergency trailer or truck, (**Attachments 1** and **2**) are deployed with every F-16 deployment of more than four aircraft or lasting more than one week, or as determined by the logistic group commander.

3.3. Hydrazine leaks are classified as minor (less than one liter) or major (1 liter or more).

NOTE: H-70 leaks (DROPS) during maintenance to include removal and replacement of emergency power unit (EPU) system components will not be considered as a leak and are dealt with on the spot by the fuel shop maintenance personnel performing the task.

3.4. Aircraft Purge. Qualified wing personnel perform the make safe operations during the pre-dock processing. All F-16 aircraft programmed to enter phase inspection must have the H-70 system purged and made safe prior to aircraft entering building. Deviations to this rule require approval by the logistics group commander.

3.5. Verification Team. Qualified personnel assigned to fuel shop perform the routine hook-up of the H-70 system. Perform system verification and check out prior to flight after H-70 system maintenance.

4. Responsibilities:

4.1. Logistics group commander and all personnel under his supervision ensure that the requirements for this wing instruction and safety instructions pertinent to chemical handling, as they apply, are disseminated to all personnel under their supervision.

4.2. Maintenance Squadron (MXS). Responsible for hydrazine (H-70) management, including detection's, containment, neutralization, cleanup and disposal at the scene that occurs within the maintenance complex. Maintenance squadron ensures the wing maintains a capability to perform normal wing H-70 maintenance, including installation and removal of the tanks and purging of the lines and other tasks described by appropriate technical orders and work authorization documents.

4.3. Fuel Shop Supervisor:

4.3.1. Ensures assigned personnel have completed pre-placement physical examinations prior to working with hydrazine (H-70).

4.3.2. Develops and maintains H-70 leak kits in coordination with a bio-environmental engineer. These kits are mobile and readily available for dispatch and mobility requirements.

4.3.3. Informs the HAFB bio-environmental engineer of any changes to either equipment or procedures to H-70 leak clean-up.

4.3.4. Establishes a training course for spill team augmentees for emergency handling of F-16 hydrazine fuels.

4.3.5. Ensures up to date and hands on training is provided to personnel.

4.3.6. Ensures personnel under his supervision having direct contact with H-70 systems, have training in the normal and abnormal emergency handling of hydrazine and all safety practices applicable to the specific operations being performed.

4.4. Ensures loading standardization crew tasks qualifies H-70 personnel (ARTs only) on weapons safe for maintenance with an annual refresher as part of the H-70 training. This includes installation of safety pins for MAU-12, TERS, ALE40 (chaff/flare), M61A1 gun, LAU-129 and AIM-9 missile launchers, and AIM-9 missile dome covers.

5. Personnel Protective Equipment. Reference T.O. 1F-16C/D-2-49GS-00-1. All personnel assigned to the hydrazine response team (HRT) have access to a complete set of protective ensemble for hydrazine protection. The ensembles are stored in the H-70 trailer or fuel shop truck.

6. Procedures. The following procedures will be adhered to for the categories of work provided in paragraph 3.1. through 3.3. of this instruction.

6.1. Normal Hydrazine Maintenance. Consists of removal, installation, and operational checks of the hydrazine system as prescribed by T.O. 1F-16C/D-2- 49JG. Normal maintenance is performed in fuel systems area, and the designated hydrazine purge pad.

CAUTION: No hydrazine maintenance will be accomplished in fuel systems area until the floor drains are plugged and checked with water to ensure that in case of spill no hydrazine will go down the drain. Normal maintenance during adverse weather may be performed inside. Fuel systems area, building 576 is the only designated inside hydrazine repair area.

6.1.1. Install plugs in floor drains.

6.1.2. Clear area of all personnel not working hydrazine.

6.1.3. Provide maximum ventilation.

6.1.4. Have respiratory protection readily available.

6.1.5. All personnel directly working on any part of the hydrazine system will be logged in the H-70 Control Book. The book will record the name of all personnel associated with the event, the aircraft tail number and the date of the event.

6.2. Abnormal Hydrazine Maintenance (No EPU Activation, Ground Operations Only). Consists of the maintenance required on any hydrazine system after an unplanned action has occurred.

6.3. Hydrazine Leaks (Aircraft on Flightline or in Hangar). The following sequence of events is mandatory:

6.3.1. Personnel suspecting or discovering H-70 leaks on aircraft immediately evacuate the area to distance of 50 feet upwind and notify the debrief/dispatch section (DDS).

6.3.2. Debrief/dispatch section (DDS) notifies the hydrazine response team when notified of a suspected hydrazine leak.

6.3.3. Dispatched fuel shop technician maintains non-TAC radio contact with the DDS until condition is made safe.

6.3.4. Dispatched fuel shop technician notifies the DDS if hydrazine leak is confirmed.

6.3.5. Debrief/dispatch section notifies the logistics group commander during “on” and “off” duty hours.

6.3.6. Debrief/dispatch section notifies quality assurance (LGQ) to impound the aircraft.

6.3.7. H-70 neutralization procedures are accomplished as prescribed by local hydrazine response checklist LCL 419 FW 10-6.

6.3.8. Aircraft involved is clearly indicated by four signs at 50-foot perimeter stating, "KEEP OUT - Hydrazine Work in Progress." This is placed by HRT.

NOTE: For leaks in excess of one liter, or beyond H-70 response team capability, the on scene fuel shop supervisor notifies DDS. Debrief/dispatch section notifies 911, as prescribed by DDS check sheet number 103B. Fuel shop personnel will to contain leak until arrival of "spill line" personnel.

6.3.9. Clean up proceeds as prescribed by T.O. 1F-16C/D-2-49GS-00-1 and LCL 419 FW 10-6.

6.4. EPU Firings and Hydrazine Leaks Due to EPU Activation (In-flight or Ground Emergency):

6.4.1. The HRT will be dispatched by the DDS as to the location of the ground or in-flight emergency.

6.4.2. The HRT will use LCL 419 FW 10-6 to C/W the event.

6.5. Storage and disposition of hydrazine tanks.

6.5.1. H-70 containers have been provided for storage of hydrazine tanks. All containers and tanks are located in the tank farm storage shed.

6.5.2. Hydrazine storage building contains:

6.5.2.1. A static grounding device.

6.5.2.2. A security device (lock).

6.5.2.3. Two storage facility placards.

6.5.2.4. Shipping/storage containers, as required. No more than six tanks may be in their respective caskets at any one time.

6.5.2.5. One 50 pound CO2 fire extinguisher.

6.5.3. Handling Procedures for H-70 Aircraft Task. Personnel performing each task will follow the applicable technical orders, directives and standards.

6.5.3.1. Perform F-16 aircraft safe for maintenance procedures as prescribed by T.O. 1F-16C-2-10JG-00-1.

6.5.3.2. Remove hydrazine (H-70) tank from aircraft.

6.5.3.3. Place all H-70 hydrazine tanks removed from aircraft in an authorized shipping/storage container. Tag the container as to the applicable aircraft tail number.

6.5.3.4. Place each H-70 tank in a storage container so it can be transported to the tank farm storage shed.

6.5.3.5. Install the H-70 tank after aircraft required maintenance is completed.

6.5.3.6. Perform system operational checks as required.

7. Procedure to Follow in the Event of Exposure to Hydrazine:

7.1. Hydrazine response team leader will direct any person who is covered with hydrazine (non protected) to be rinsed with water. The HET trailer has a portable shower, which is deployed at the event site. The shower is hooked to the on scene fire truck.

7.2. Team supervisor calls medical team and ambulance to provide assistance and transport exposed personnel as soon as possible. Debrief/dispatch section notifies base hospital emergency room, of the incident and gives location of the person(s) exposed to H-70.

7.3. The spill team personnel will neutralize contaminated clothing/equipment. No clothing or equipment is stored until it is decontaminated.

7.4. Under the direction of bio-environmental engineer from the civil engineering spill team dispose of clothing which cannot be decontaminated. This includes the disposal of other contaminated materials.

8. Flushing Procedures. If personnel are exposed to hydrazine, the following applies:

8.1. Eyes. Immediately flush with large amounts of clean water for a minimum of fifteen minutes and seek medical aid.

8.2. Exposed Skin. Immediately flush with large amounts of clean water for a minimum of 15 minutes then seek medical aid.

8.3. Inhalation. Seek immediate medical aid.

F.C. WILLIAMS, Col, USAFR
Commander

Attachment 1

H-70 RESPONSE TRAILER

NOUN	QUANTITY	SIZE
HTH	200 LBS (TDY)	NA
5% BLEACH	25 GALS(32 and up)(TDY)	NA
AIR PAK	4 EA	NA
SAFETY CONE	4 EA	NA
H-70 WARNING SIGNS	4 EA	NA
WHITE COTTON RAGS	1 BUNDLE	NA
MOP HANDLE	2 EA	NA
3 GALLON BUCKET	2 EA	NA
WASHDOWN BOTTLES	4 EA	NA
APRON	3 EA	MEDIUM
*LEVEL B RESPONDER SUIT	5 PAIR	1LG/1SM/2MED/1 XL
FIREMAN BOOTS	5 PAIR	1-12/2-10/1-7/1-9
WHITE COTTON COVERALLS	4 PAIR	2 LG/1 SM/1 MED
COMMUNICATION HEADSET	2 EA	NA
COMMUNICATION CORD	1 EA	NA
ROCKET HANDLERS GLOVES	PAIR	1 SM/2 MED/1 LG
MOP HEAD	2 EA	NA
T.O. 1F-16A-2-49JG-00-1	1 EA	NA
T.O. 1F-16A-2-49JG00-2	1 EA	NA
T.O. 1F-16A-2-49JG-00-3	1 EA	NA
SCRUBBER	1 EA	NA
BREATHING MASK	1 EA	NA
AIRCRAFT PINS	1 SET	NA
DRAEGER TESTER	1 EA	NA
CREW 60 WITH HOSE	1 EA	NA
AIR HOSE 100 FT	1 EA	NA
30 GALLON BUCKET	1 EA	NA
LADDER ESCAPE	1 EA	NA
*T.O. 1F-16C-10JG030-1	1 EA	NA

*T.O. 1F-16C-2-28JG-10-1	1 EA	NA
*T.O. 1F-16C-2-28JG-20-1	1 EA	NA
*T.O. 1F-16C-2-28JG-20-2	1 EA	NA
*T.O. 1F-16C-2-28JG-20-3	1 EA	NA
BATTERY WATER/ALCOHOL MIX	25 GAL	NA
H-70 DETECTION KIT	1 EA	NA
H-70 TOOL KIT	1 EA	NA
CHOCKS	2 PR	NA
PORTABLE GENERATOR	1 EA	NA
EXTENSION CORDS	200 FT	NA
FLOOD LIGHTS	2 EA	NA
RED FLASHING LIGHTS	8 EA	NA
*SPARE BREATHING AIR BOTTLES	6 EA	NA
ABSORBANT MATERIAL	1 BAG	NA
H-70 RESPONSE CHECKLIST	1 EA	NA
EYE WASH STATION	1 EA	NA
GROUND FAULT CIRCUIT	1 EA	NA
FIRST AID KIT & EAR PLUGS		

Attachment 2

H-70 RESPONSE TRUCK

NOUN	QUANTITY	SIZE
HTH	(TDY)	NA
5% BLEACH	5 GALS	NA
AIR PACK	3 EACH	NA
SAFETY CONES	1 EACH	NA
H-70 WARNING SIGNS	2 EACH	NA
WHITE COTTON RAGS	1 BUNDLE	NA
3 GALLON BUCKET	2 EACH	NA
30 GALLON BUCKET	1 EACH	NA
APRON	3 EACH	MEDIUM
*LEVEL B RESPONDER SUIT	4 EACH	2 LG/1 MED/1 X-LG
FIREMAN BOOTS	4 PAIR	1-12/3-10
ROCKET HANDLERS GLOVES	5 PAIR	2 LG/2 MED/1 SM
*T.O. 1F-16C-10JG-30-1	1 EACH	NA
*T.O. 1F-16C-2-49JG-00-1	1 EACH	NA
*T.O. 1F-16C-2-49JG-00-2	1 EACH	NA
*T.O. 1F-16C-2-49JG-00-3	1 EACH	NA
BREATHING MASK	1 EACH	NA
AIRCRAFT PINS	1 SET	NA
DRAEGER TESTER	1 EACH	NA
CREW 60 WITH HOSE	2 EACH	NA
COMMUNICATION CORD	1 EACH	NA
ELECTRIC HEADSET	2 EACH	NA
ESCAPE LADDER	1 EACH	NA
AIR BOTTLE	1 EACH	NA
WATER/ALCOHOL MIX	15 GAL	NA
H-70 DETECTION KIT	1 EACH	NA
H-70 TOOL KIT	1 EACH	NA
*T.O.1F-16C-2-28JG-10-1	1 EACH	NA
*T.O.1F-16C-2-28JG-20-2	1 EACH	NA
*T.O.1F-16C-2-28JG-20-2	1 EACH	NA

*T.O.1F-16C-2-28JG-20-3	1 EACH	NA
CHOCKS	1 PR	NA